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These values are represented by the equation:

$$\begin{array}{rl} \text{Latitude} = 24''.386 & + \ 0''.028 \cos \phi - 0''.297 \sin \phi \\ & - \ \ .039 \cos 2\phi - \ \ .006 \sin 2\phi \\ & + \ \ .040 \cos 3\phi + \ \ .001 \sin 3\phi \end{array}$$

where the period of 381 days and the values are counted from July 0, 1891. The maximum is at April 2, 1892, and the minimum at September 14, 1891. The amplitude is 0''.621. ϕ is the angular position of the pole.

A bulletin, containing fuller information and further details, is now in course of publication by the U. S. Coast and Geodetic Survey, and copies may be obtained by application to the Superintendent.

MEAN MONTHLY AND ANNUAL BAROMETRIC AND THERMOMETRIC READINGS AT MOUNT HAMILTON, 1880–1892.

Following is a table of observations of the barometer and thermometer, more or less complete, taken at the Lick Observatory from September, 1880, up to and including December, 1892, by monthly and yearly means. Observations are wanting during the interval from November, 1885, to June, 1888, inclusive. It should be mentioned that the observations for temperature from September, 1880, to October, 1885, were made with the thermometer in a wooden box at one of the cottages, some seventy feet below the Lick Observatory, and it is probable that the results indicate a higher temperature than those following, which were taken under the usual Signal Service conditions.

As indicated, a portion of the results for temperature is deduced from the mean of the maximum and minimum thermometers, while the remainder is obtained from readings of the dry bulb, taken at 7 A. M., 2 P. M. and 9 P. M. by the formula $\frac{7+2+9+9}{4}$. The barometric observations for 1888, 1889 and 1890 are reduced to the freezing point, 32° F., as indicated. An aneroid barometer was employed before 1888.

No monthly means in this list were accepted which were not obtained from observations on at least 19 days. While the data here presented are not as complete as might be desired, they are the best available.

C. D. Perrine.

Lick Observatory, May 20, 1893.

Month.	1880		1881		1882		1883		1884		1885	
	Barometer.	Thermometer F.°	Barometer.	Thermometer F.°	Barometer.	Thermometer F.°	Barometer.	Thermometer F.°	Barometer.	Thermometer F.°	Barometer.	Thermometer F.°
January	.....	..	25 721	43	25 678	36	25.782	41	25 719	41	25.735	45
February	......	..	.789	44	.726	37	.687	39	.641	40	.731	47
March	......	..	.709	46	......	42	703	52	.573	40	.756	52
April	......	..	.702	57	......	45	.687	45	.617	42	.651	50
May	......	..	.692	60	......	63	.691	54	.670	55	.662	58
June	......	..	.769	64	.....	62	.743	68	.687	56	.725	58
July	......	..	.774	70	.780	73	.784	75	.441	68	......	70
August	.....	..	.736	68	.737	73	.786	70	.737	69	.719	75
September	.....	66	.719	62	.738	68	778	70	.670	61	.688	67
October	25.819	62	.737	45	715	51	.689	51	685	57	.703	67
November	.792	49	.789	39	.732	45	.754	50	.732	50	......	..
December	683	43	.777	43	.691	47	.765	46	553	38	......	..
Mean	25 765	55	25 743	54	25 725	53	25 737	56	25 669	52	25 708	59

Month.	1888		1889		1890		1891		1892	
	Barometer. *	Thermometer F.	Barometer. *	Thermometer F.	Barometer. *	Thermometer F	Barometer.	Thermometer F.	Barometer	Thermometer F.
January	......	..	25 744	40	25.708	30.3	25.846	41 6	25.789	43 6
February	......	.	.803	44	.732	36.0°	.636	35 0	.734	41 7
March	......	..	.696	45	.778	41.8°	.750	41 0	.735	42.6
April	......	..	.773	48	.784	41 0	.743	44.2	.832	42.3
May	......	..	.753	53	.759	46 5	.723	51.3	.767	52 6
June	......	..	.768	67	.793	57.7	.740	55 5	.771	57.3
July	25.816	66	.788	70	.814	69.7	.792	70.9	.777	66 9
August	.801	72	.781	70	.799	69.0	.818	71.5	.880	70 8
September	.783	69	.809	69°	.778	67.4°	.779	60 3	.890	61.8
October	.768	57	.799	54°	.798	58.9°	.821	58 7	.842	53.2
November	.740	47	.820	50°	.857	56 5°	.843	51 8	.832	49.7
December	.748	44	.820	35	.809	45 7	.845	35 8	.793	39 4
Mean	.776	59	25.790	54	25.792	51 7	25.778	51 5	25 804	51.8

° Results obtained from $\frac{\text{max.} + \text{min.}}{2}$. Other thermometer results obtained from dry bulb $\frac{7 + 2 + 9 + 9}{4}$.

* Corrected and reduced to 32° F.

Year.	Mean Barometer.	Mean Thermometer F.
1881	25.743	54.
1882	.725	53.
1883	.737	56.
1884	.669	52.
1885	.708	59.
1889	.790	54.
1890	.792	51.7
1891	.778	51.5
1892	.804	51.8
Mean	25.750	53.7

See also Table on page 135.

RAINFALL AT MOUNT HAMILTON IN THE YEARS 1880–1892.

Compiled by C. D. Perrine.

Month.	1880–81	1881–82	1882–83	1883–84	1884–85	1885–86	1886–87	1887–88	1888–89	1889–90	1890–91	1891–92
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
July	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00
August	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.02	0.00	0.00	0.00
September	0.00	0.10	0.00	0.65	0.65	0.15	0.00	0.33	0.49	0.00	0.80	0.28
October	0.00	0.33	6.16	2.15	3.71	0.05	0.60	0.09	0.03	4.38	0.02	0.61
November*	0.50	0.91	3.45	1.48	0.01	...	2.82	0.90	3.27	4.69	0.58	0.38
December	9.68	9.72	1.93	2.05	33.84	....	2.34	11.25	4.23	13.19	5.39	9.54
January	3.51	3.55	3.10	5.60	1.99	....	2.83	10.04	1.04	7.93	1.38	1.97
February	5.99	2.90	3.75	12.76	0.57	1.80	7.80	1.38	1.42	5.70	6.52	2.99
March	1.13	5.40	8.66	16.35	1.15	5.77	1.39	3.40	6.17	4.39	4.26	5.96
April	0.98	4.70	2.66	11.96	2.08	6.79	5.75	0.68	1.92	1.79	3.08	1.90
May	0.09	0.48	7.55	1.24	0.16	0.70	0.25	1.25	3.21	2.45	1.01	3.52
June	0.33	1.06	0.00	3.85	0.36	0.00	0.30	0.67	0.00	0.00	0.57	0.32
Sums	22.21	29.15	37.26	58.09	44.67	...	24.08	30.03	21.80	44.52	23.61	27.47

* November, 1880.—One shower; amount assumed to be 0.50 inches.

Mean annual rainfall (11 years), July to July, 32.99 inches.

Note.—This differs slightly from previous tabulations, but it is believed to be correct.